## AMENDMENTS TO THE CLAIMS

1. (Previously presented) A method for making a biomaterial, said method comprising combining two or more precursor components of said biomaterial under conditions that allow polymerization of the components, wherein said polymerization occurs through self selective reaction between a strong nucleophile and a conjugated unsaturated bond or a conjugated unsaturated group, by nucleophilic addition, wherein each of said precursor components comprises at least two strong nucleophiles or at least two conjugated unsaturated bonds or conjugated unsaturated groups, and wherein said biomaterial does not comprise albumin in its natural state, and said unsaturated bonds or groups are not maleimide or vinyl sulfone, thereby making said biomaterial.

2. (Original) The method of claim 1, wherein said components are selected from the group consisting of oligomers, polymers, biosynthetic proteins or peptides, naturally occurring peptides or proteins, processed naturally occurring peptides or proteins, and polysaccharides.

3. (Cancelled)

4. (Original) The method of claim 1, wherein said strong nucleophile is selected from the group consisting of a thiol or a group containing a thiol.

5. (Previously presented) A method for making a biomaterial, said method comprising combining two or more precursor components of said biomaterial under conditions that allow polymerization of the components, wherein said polymerization occurs through self selective reaction between an amine and a conjugated unsaturated bond or a conjugated unsaturated group, by nucleophilic addition, wherein each of said precursor components comprises at least two amines or at least two conjugated unsaturated bonds or conjugated unsaturated groups, and wherein said biomaterial does

not comprise albumin in its natural state, and said unsaturated bonds or groups are not maleimide or vinyl sulfone, thereby making said biomaterial.

6. (Original) The method of claim 1, wherein said conjugated unsaturated group is an acrylate, an acrylamide, a quinone, or 2- or 4-vinylpyridinium.

7. (Original) The method of claim 2, wherein said polymer is selected from the group consisting of poly(ethylene glycol), poly(ethylene oxide), poly(vinyl alcohol), poly(ethylene-co-vinyl alcohol), poly(acrylic acid), poly(ethylene-co-acrylic acid), poly(ethyloxazoline), poly(vinyl pyrrolidone), poly(ethylene-co-vinyl pyrrolidone), poly(maleic acid), poly(ethylene-co-maleic acid), poly(acrylamide), and poly(ethylene oxide)-co-poly(propylene oxide) block copolymers.

8. (Previously presented) The method of claim 1, wherein one of said components comprises at least three strong nucleophiles or at least three conjugated unsaturated bonds or at least three conjugated unsaturated groups.

9. (Original) The method of claim 2, wherein said peptide comprises an adhesion site, growth factor binding site, or protease binding site.

10. (Original) The method of claim 1, further comprising combining said precursor components with a molecule that comprises an adhesion site, a growth factor binding site, or a heparin binding site and also comprises either a strong nucleophile or a conjugated unsaturated bond or a conjugated unsaturated group.

11. (Original) The method of claim 10, wherein said strong nucleophile is a thiol or said conjugated unsaturated bond or conjugated unsaturated group is an acrylate, an acrylamide, a quinone, or a vinyl pyridinium.

12. (Original) The method of claim 1, wherein said biomaterial is a hydrogel.

13. (Previously presented) The method of claim 1, wherein said biomaterial is degradable in vivo.

14. (Cancelled)

15. (Original) The method of claim 1, wherein said biomaterial is made in the presence of cells or tissues.

16. (Original) The method of claim 1, wherein said biomaterial is made within or upon the body of an animal.

17. (Original) The method of claim 1, further comprising combining said precursor components with an accelerator prior to polymerization.

18. (Original) The method of claim 1, further comprising mixing said precursor components with a component that comprises at least one conjugated unsaturated bond or conjugated unsaturated group and at least one amine reactive group.

19. (Original) The method of claim 15, further comprising applying an additional component to the cell or tissue surface, the additional component comprising at least one conjugated unsaturated bond or conjugated unsaturated group and at least one amine reactive group.

20.-50. (Cancelled)

51. (Previously presented). The method of claim 1, wherein said strong nucleophile is a thiol and said conjugated unsaturated group is an acrylate.

52. (Previously presented) The method of claim 1, wherein said at least two components comprise poly(ethylene glycol).

53. (Previously presented) The method of claim 1, wherein one of said components comprises poly(ethylene glycol) and one of said components does not comprise poly(ethylene glycol).

54. (Previously presented) The method of claim 1, wherein said components are poly(ethylene glycol) dithiol and poly(ethylene glycol) tetraacrylate.

55. (Previously presented) The method of claim 1, wherein one of said components comprises pentaerythritol.

56. (Previously presented) The method of claim 1, wherein one of said components is poly(ethylene glycol) dithiol with a molecular weight of 3400 Da.